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PsychoPy Tutorial

Building a simple experiment and deploying online

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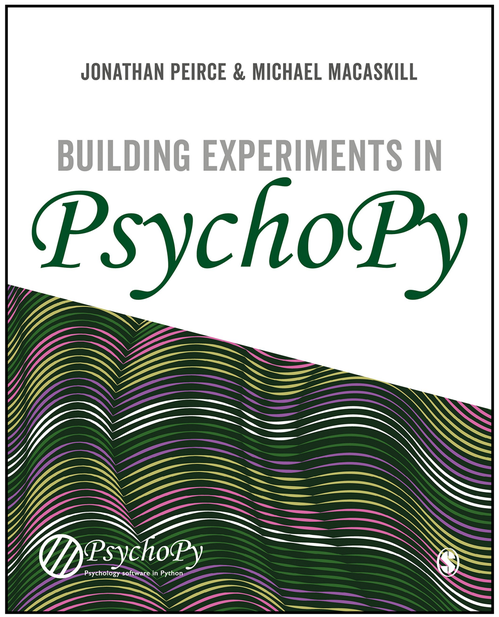
PsychoPy ?

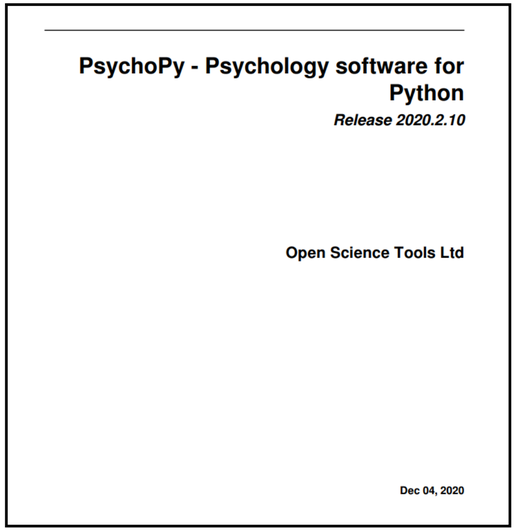
- “PsychoPy is an application for the creation of experiments in behavioral science (psychology, neuroscience, linguistics, etc.) with precise spatial control and timing of stimuli. … users can write scripts in Python if they choose, while those who prefer to construct experiments graphically can use the new Builder interface.” (Peirce et al. 2019)

- “new opportunities for psycholinguistic research that are made available by presenting experiments online over the web. We focus on PsychoPy3, which is a new version of a system for the development and delivery of behavioural experiments. Crucially, it allows for both these functions to be performed online.” (Gallant & Libben 2019)

Reference Materials

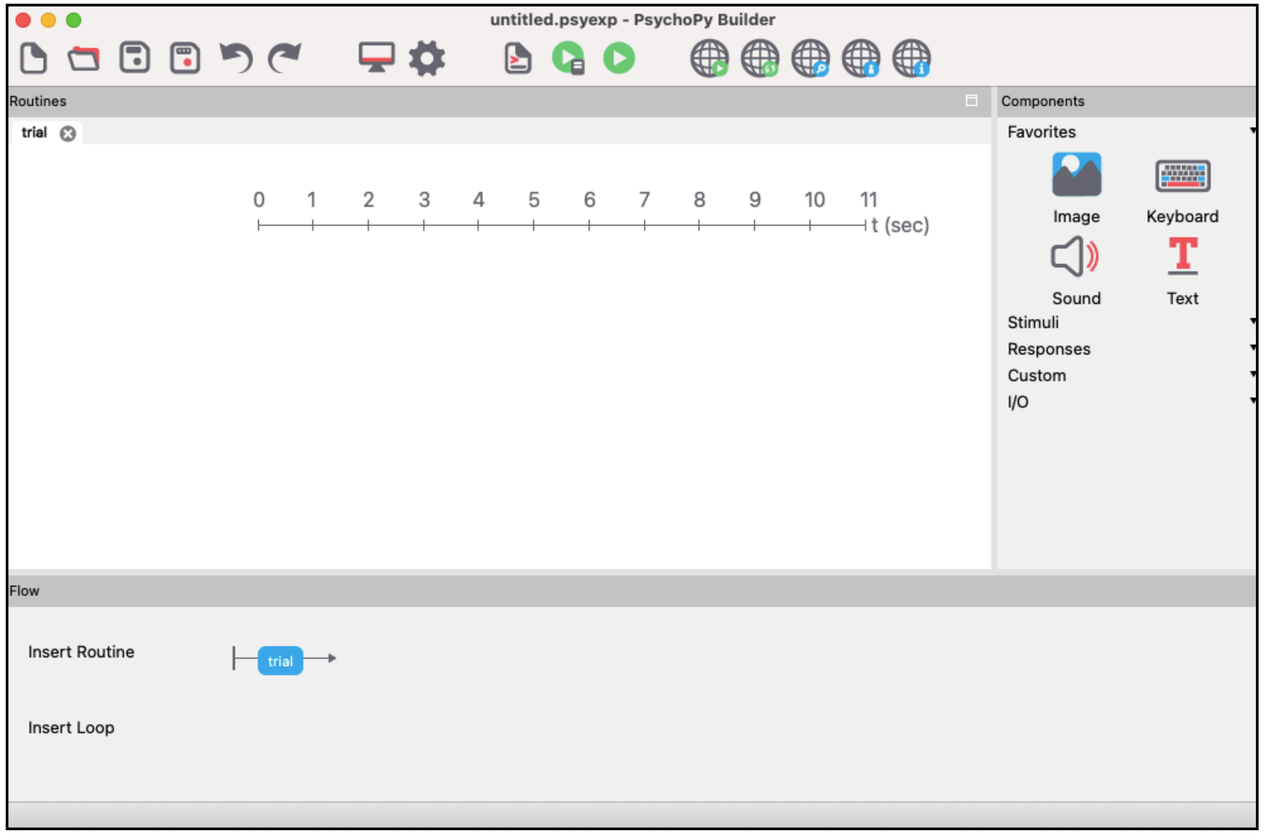
- Building Experiments in PsychoPy (2018)
- PsychoPy - Psychology software for Python - Release 2020.2.10 (https://www.psychopy.org/PsychoPyManual.pdf)





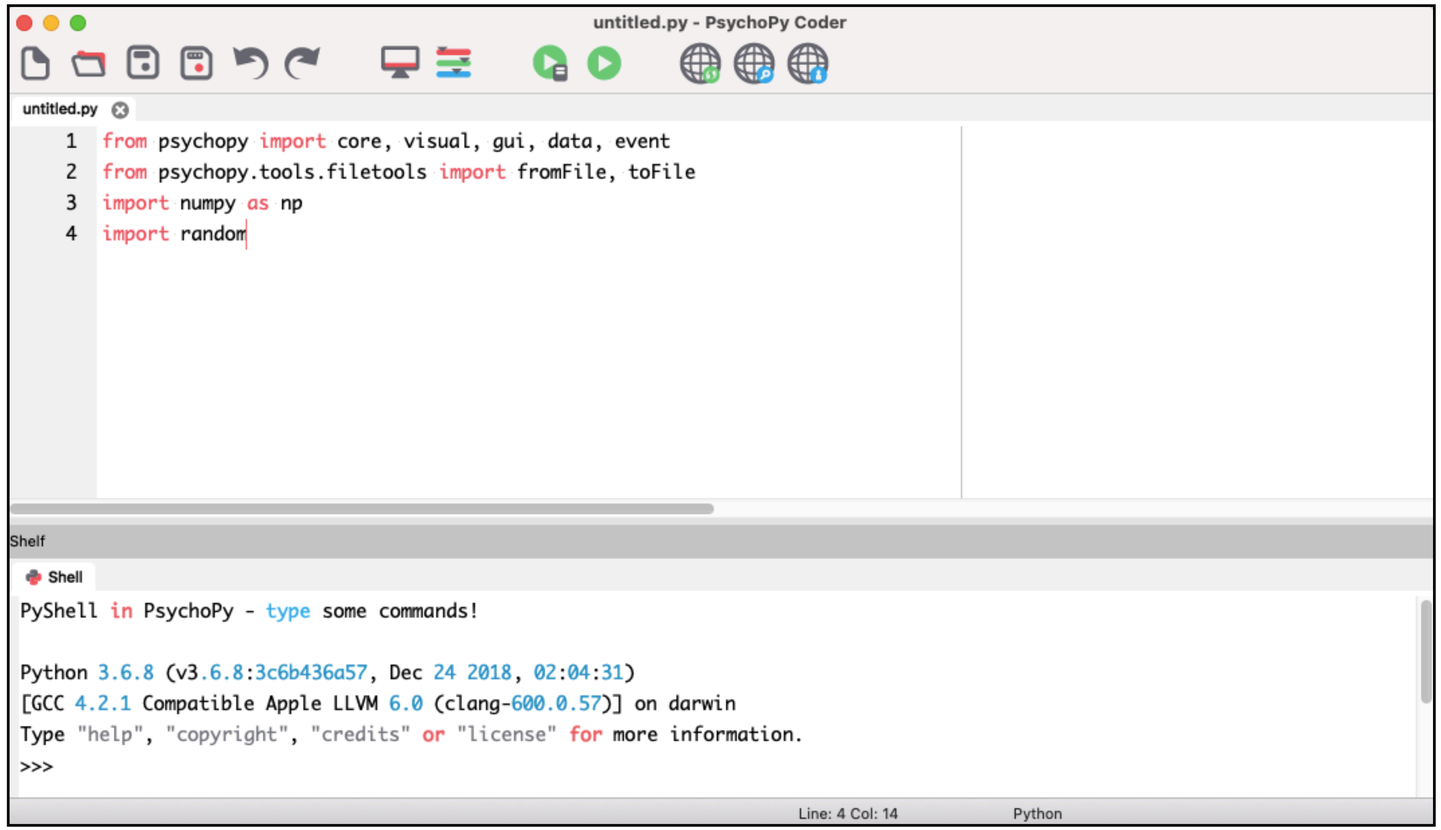
Components of PsychoPy

- **Builder** + Coder + Experiment Runner



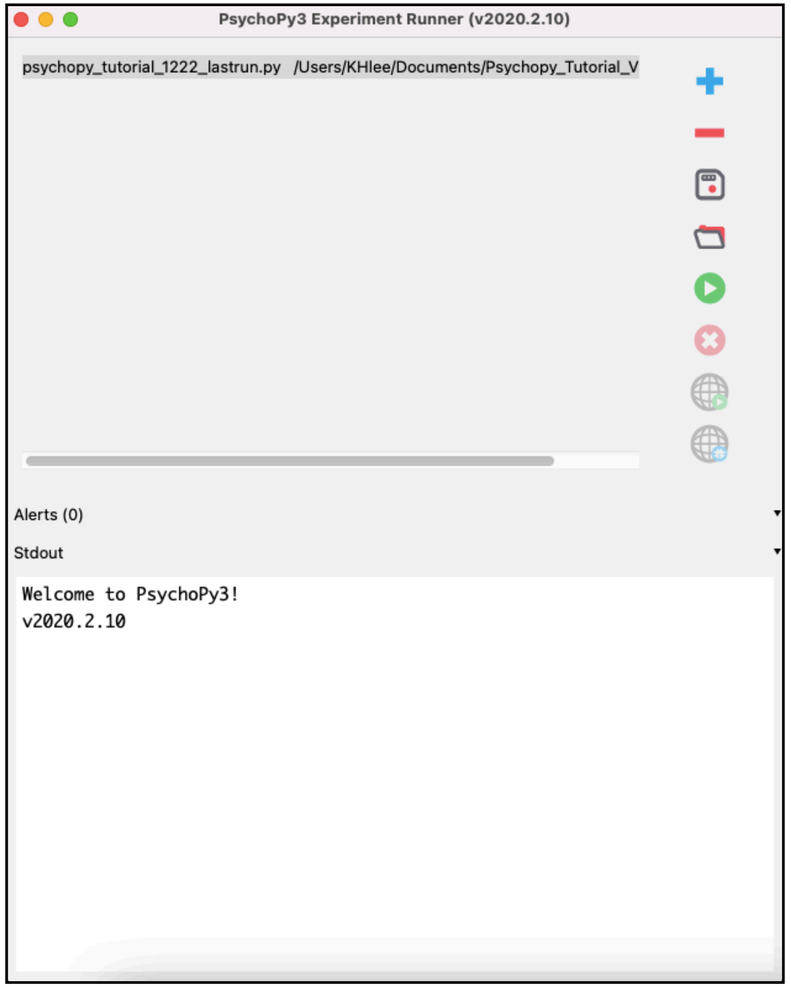
Components of PsychoPy

- Builder + **Coder** + Experiment Runner



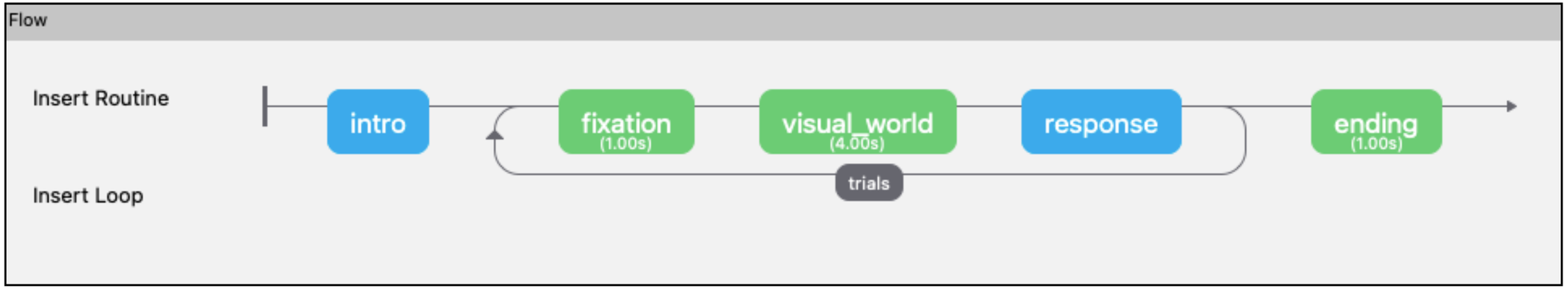
Components of PsychoPy

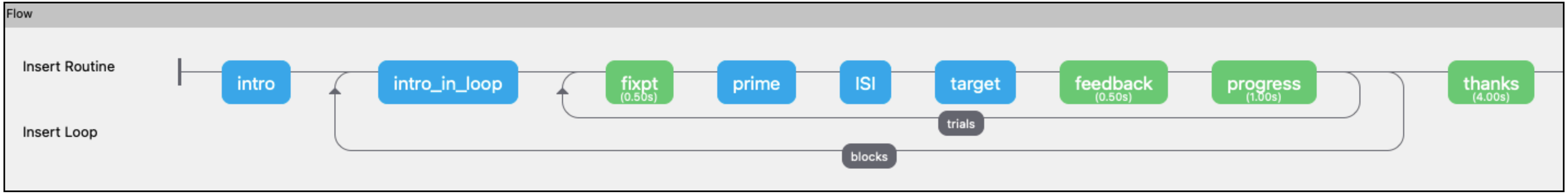
- Builder + Coder + **Experiment Runner**



Elements of PsychoPy Builder

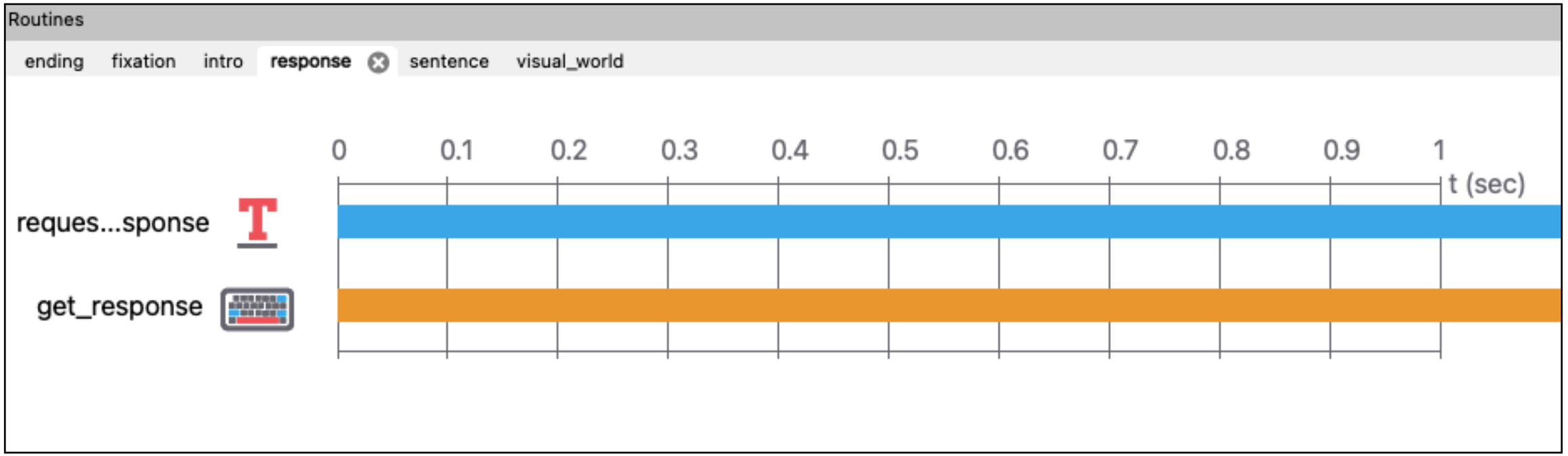
- **Flow** ⊃ Routines & Loops ⊃ Components





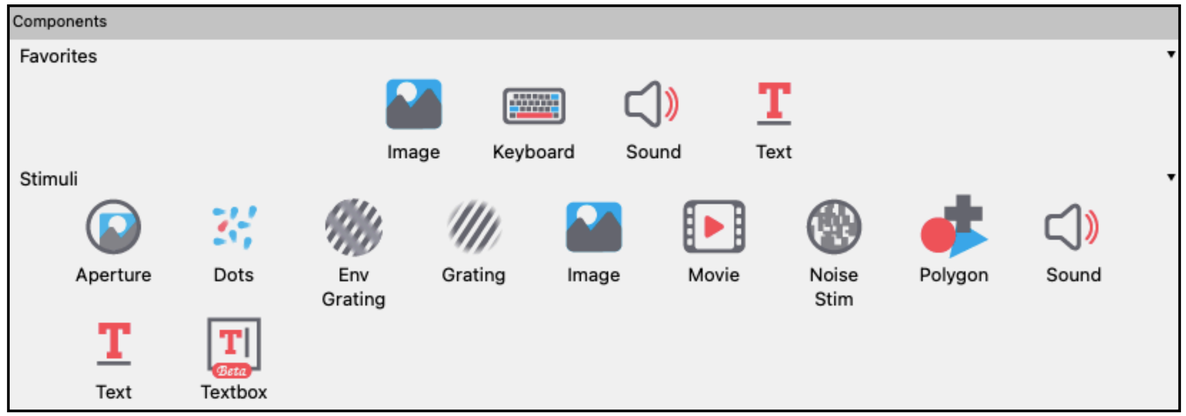
Elements of PsychoPy Builder

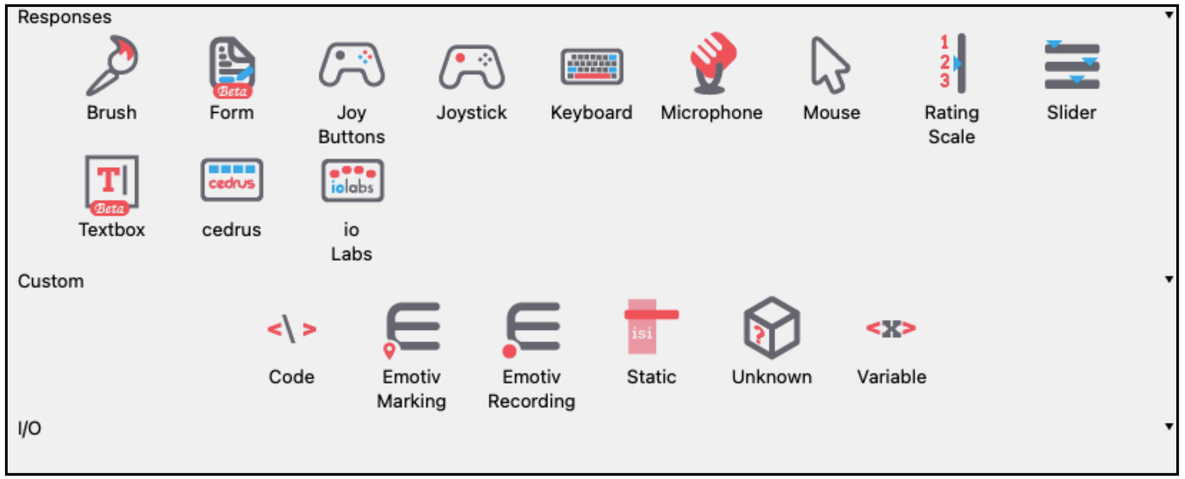
- Flow ⊃ **Routines** & Loops ⊃ Components



Elements of PsychoPy Builder

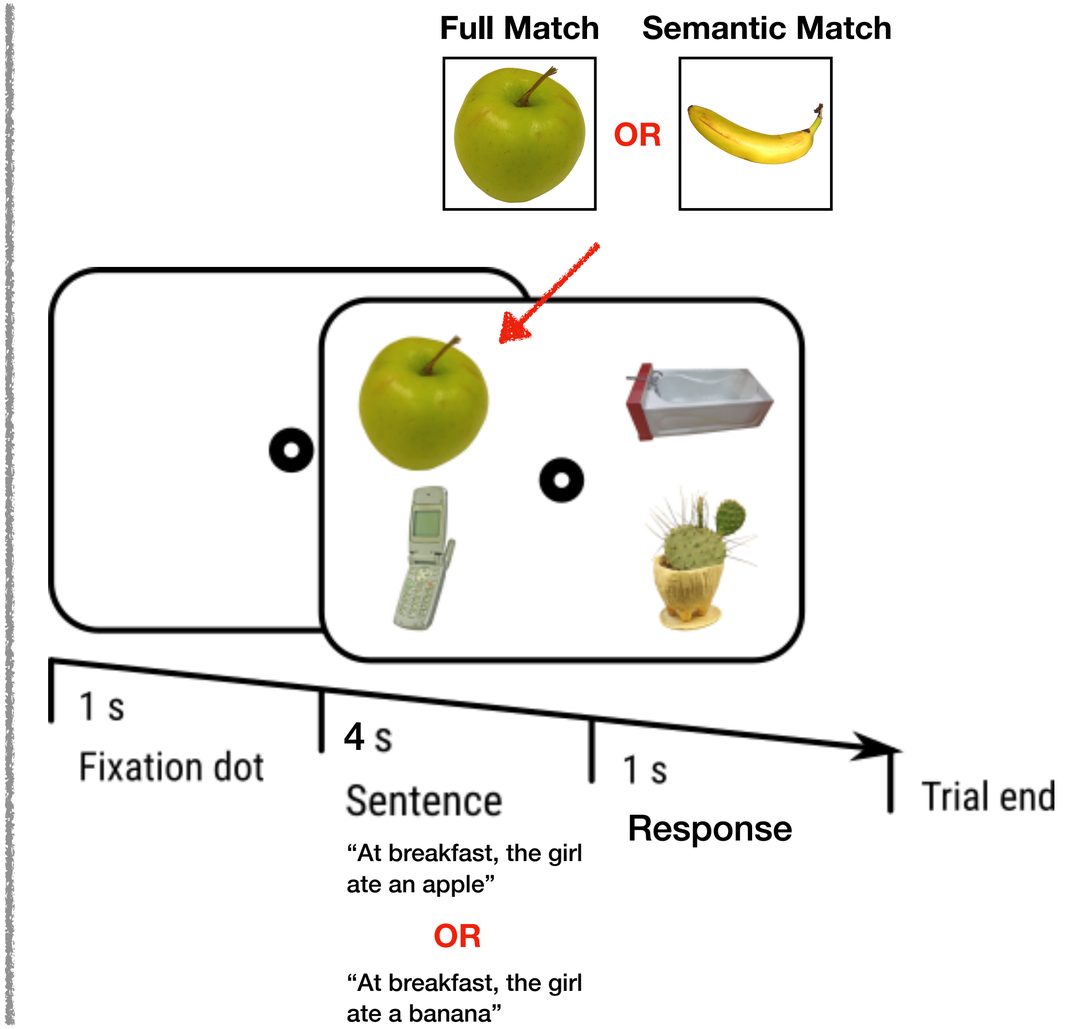
- Flow ⊃ Routines & Loops ⊃ **Components**



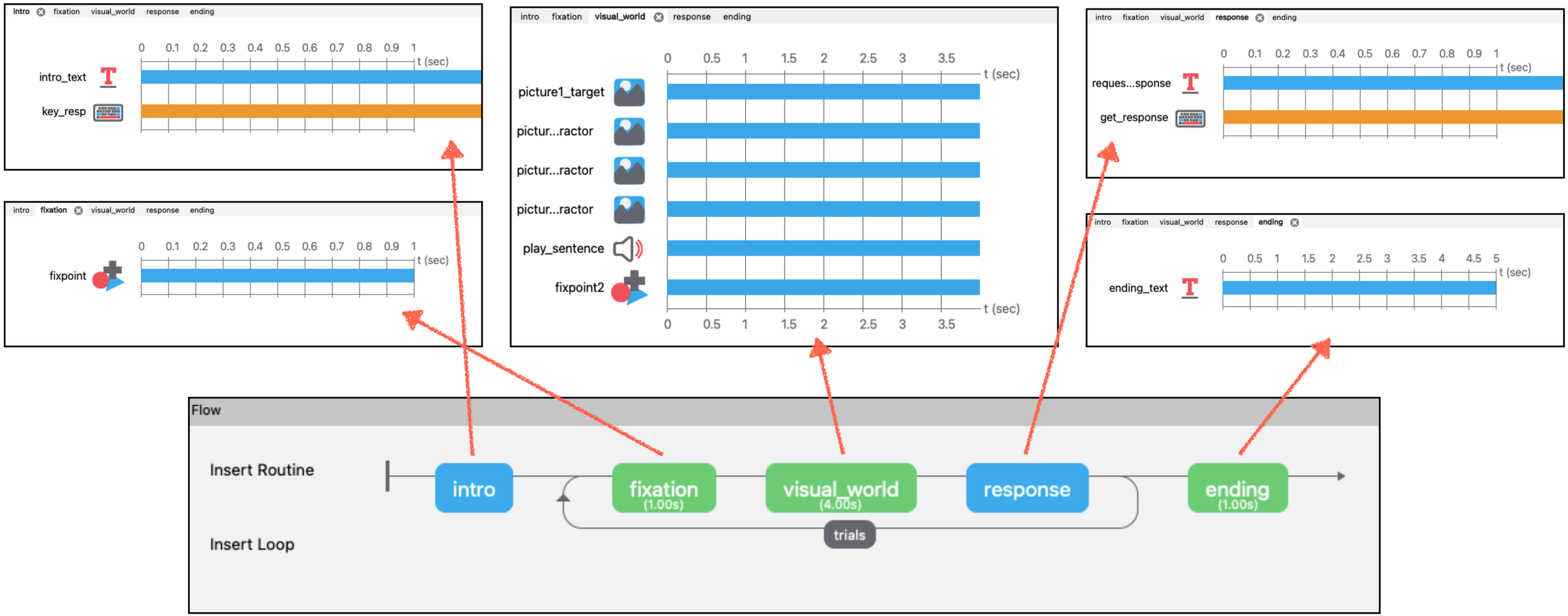


Demo experiment we will implement

- Inspired by — https://osdoc.cogsci.nl/3.3/tutorials/visual-world/
- Visual world paradigm
- 1 target object + 3 distractors
- One factor (Target Match) with two levels (Full or Semantic), varied within subjects.
- 16 recorded sentences, 16 target objects
- Every sentence and every target object is shown twice: once in the Full Match condition, and once in the Semantic Match condition
- Stimuli (images & sounds) can be downloaded from — https://osf.io/z27rt/

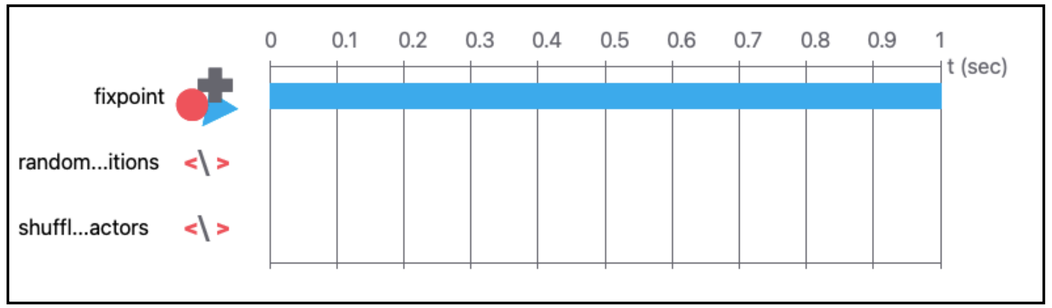


Demo experiment implemented in the Builder

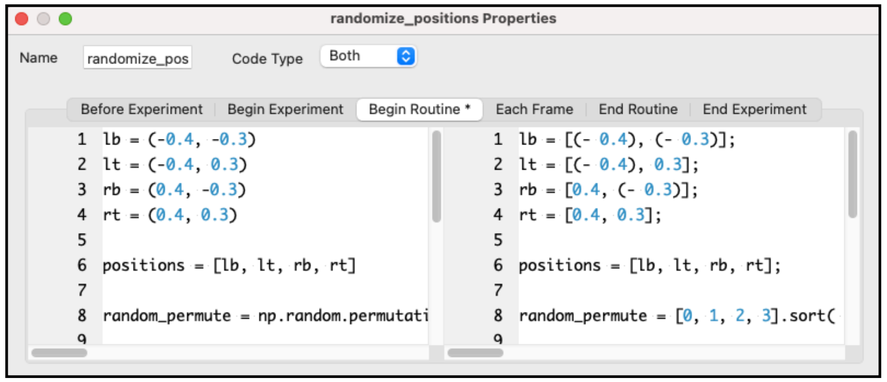


Utilizing custom codes

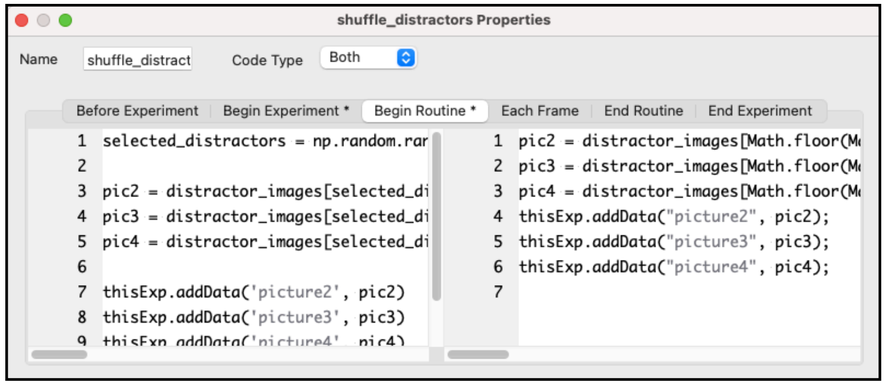
- Code components can be added
  - You can select when the block is executed (before experiment, begin routine etc.)
  - Code can be written in two languages (Python & Javascript)
  - JS -> Py auto-conversion is supported (but not perfect)



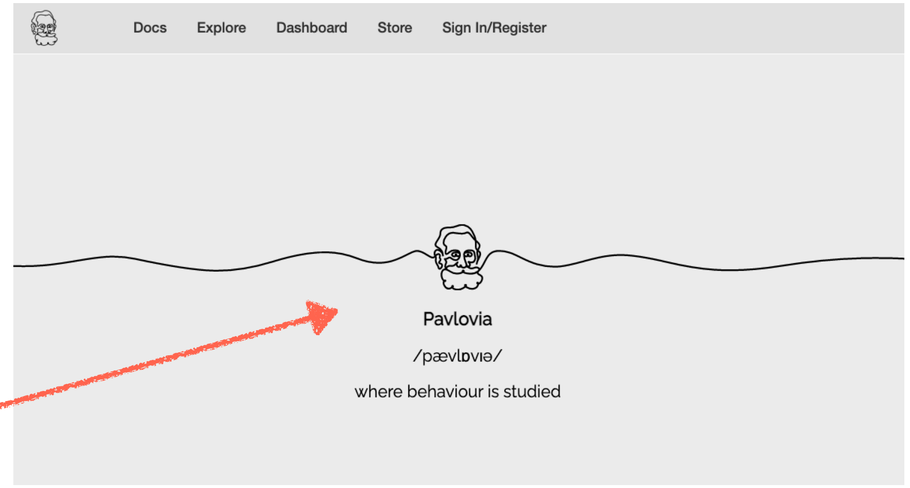
- Eg. for randomizing image positions



- Eg. for presenting random distractors



Going ONLINE



- Now it's time to use these icons

1. Go to Pavlovia (https://pavlovia.org/), create an account

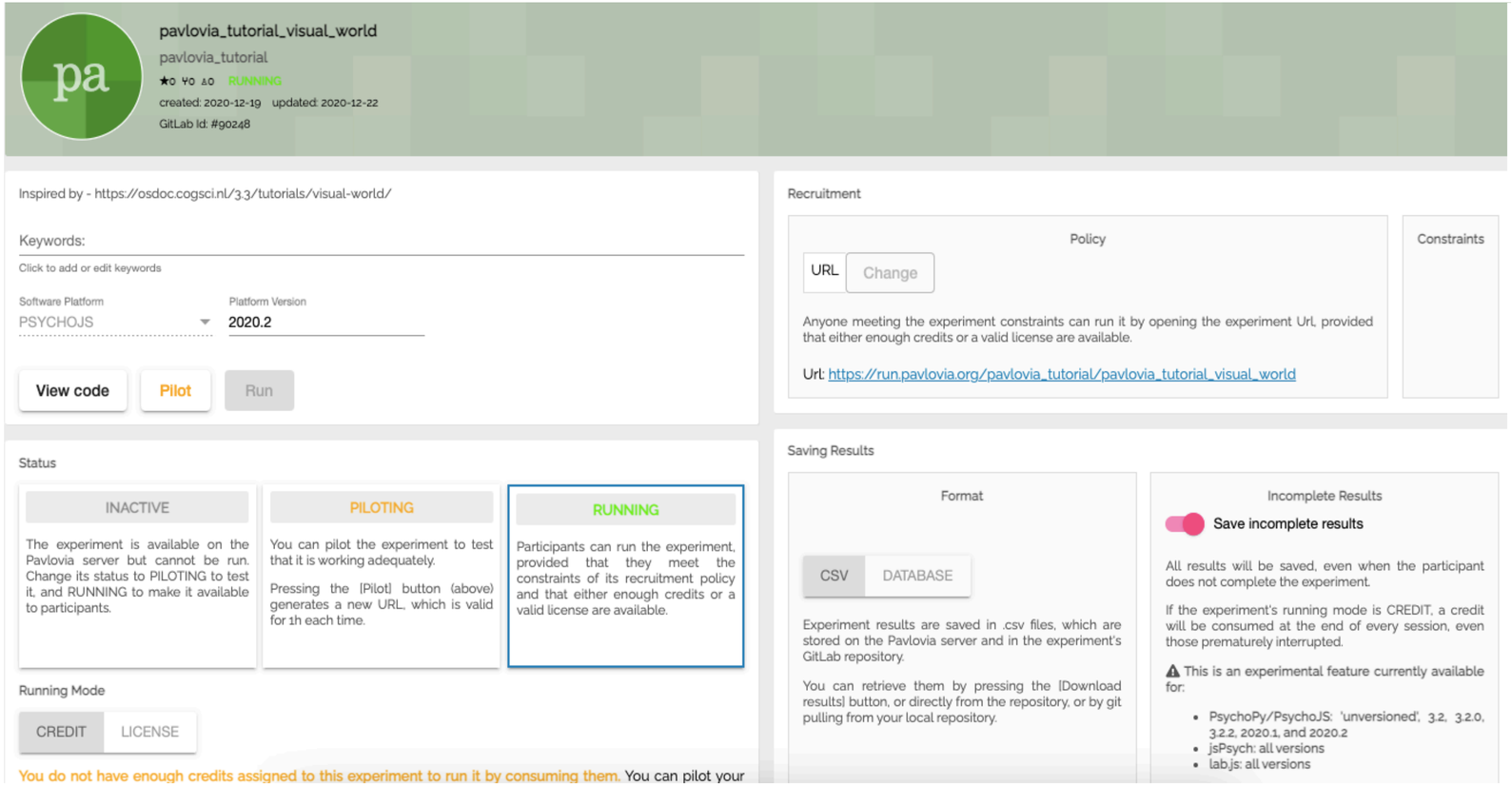
2. Clicking one of the first two icons will auto-convert experiment script in .py (Python) to .js (Javascript) and ask you to create a repository (Pavlovia runs based on Gitlab version control system)

3. Upload your experiment by syncing your local folder with the online repository

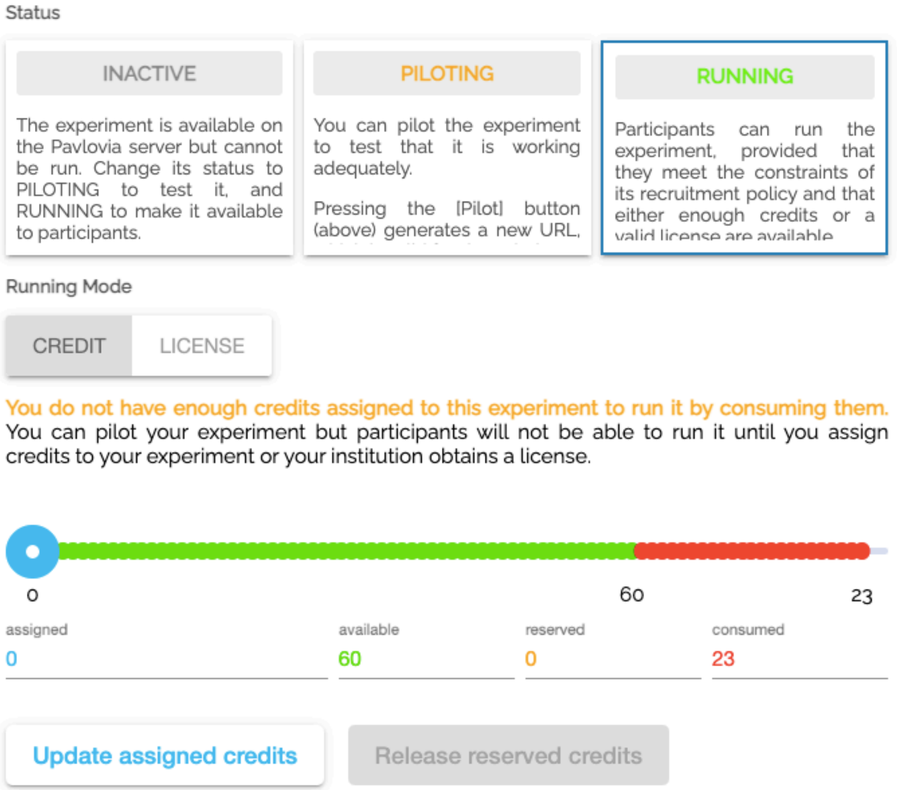
4. When your experiment is up, you can assign credits to the experiment and start sharing the experiment link (you need to buy credits from Pavlovia, but it really doesn't cost much)

Going ONLINE

Your experiment is now online



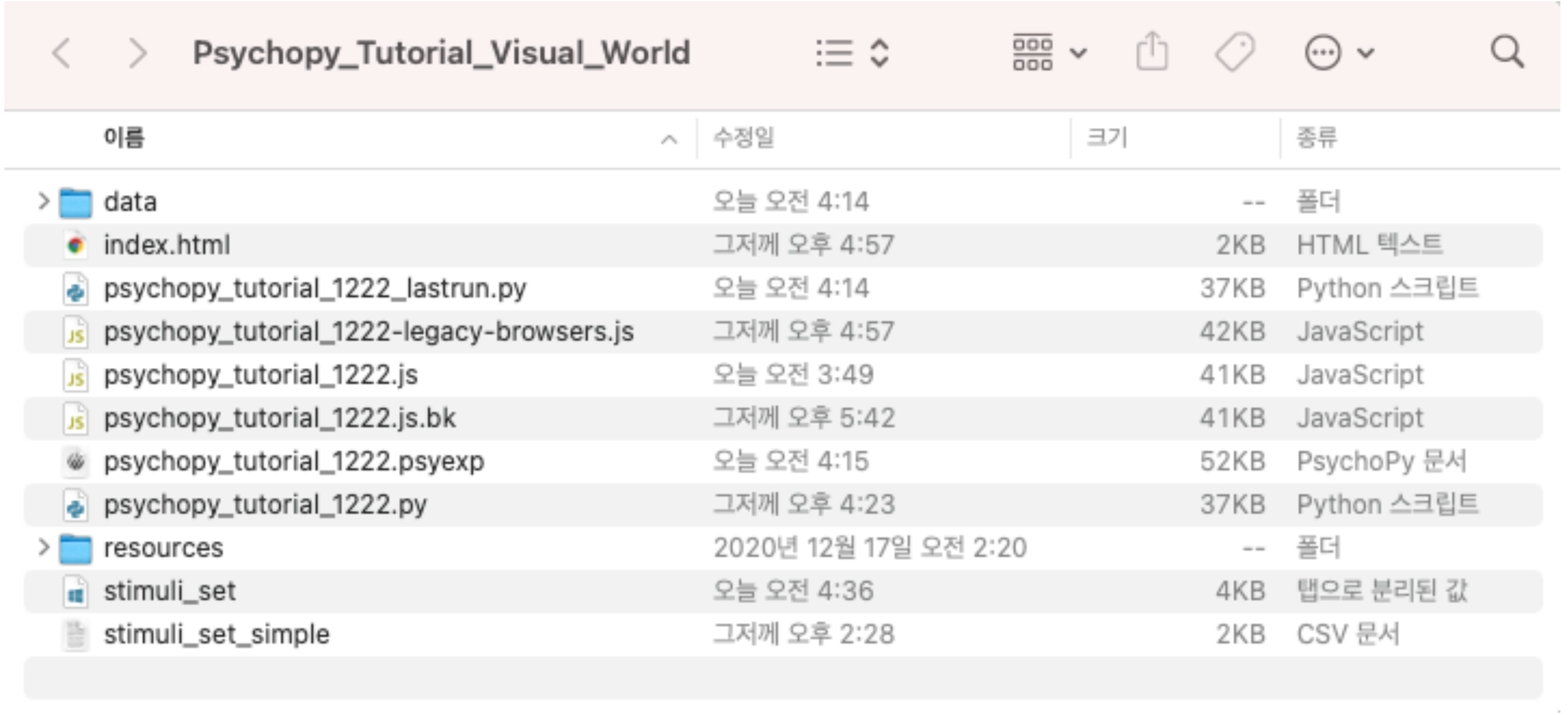
Assigning credits



An experiment can be in three states: inactive, piloting, and running

1 participant = 1 credit

Folder structure when we're done



- You can download the .zip file of this folder at — https://drive.google.com/file/d/1rER272MXw-yAyAQcBihn4C1tY0ItukhV/view?usp=sharing

Reference

- Gallant, J., & Libben, G. (2019). No lab, no problem: Designing lexical comprehension and production experiments using PsychoPy3. *The Mental Lexicon*, *14*(1), 152-168.

- Peirce, J., & MacAskill, M. (2018). *Building experiments in PsychoPy*. Sage.

- Peirce, J., Gray, J. R., Simpson, S., MacAskill, M., Höchenberger, R., Sogo, H., ... & Lindeløv, J. K. (2019). PsychoPy2: Experiments in behavior made easy. *Behavior research methods*, *51*(1), 195-203.

- Peirce, J., (2020) PsychoPy - Psychology software for Python - Release 2020.2.10 (https://www.psychopy.org/PsychoPyManual.pdf)